UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/974,759	10/09/2001	Stephen D. Rank	IMMR-0142 (434701-464)	7035

60140 7590 04/13/2009
IMMERSION - NIXON PEABODY LLP
200 Page Mill Road
Palo Alto, CA 94306

EXAMINER	
KUMAR, SRILAKSHMI K	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
04/13/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/974,759	RANK, STEPHEN D.	
	Examiner	Art Unit	
	SRILAKSHMI K. KUMAR	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _30 January 2009_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _2,4-7,10,22-25,27 and 28_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _2, 4-7, 10, 22-25, 27 and 28_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The following office action is in response to the amendment filed on January 30, 2009. Claims 2, 4-7, 10, 22-25, 27 and 28 are pending. Claims 2, 22 and 28 have been amended.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 2, 4, 5, 10, 22-24, 27 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Thorner et al (US 6,422,941) in view of Chiba (US 5,675,709).

As to independent claim 2, Thorner et al teach a method comprising; storing at least a portion of sound data in a memory buffer of a computer (Fig. 10 and col. 11, lines 54-64), wherein the sound data is to be analyzed by a processor to output a haptic effect from the analyzed sound data (col. 6, lines 25-37, teach the computer system and in col. 6, lines 57-65 teach interpreting audio signals for feedback).

Thorner et al. teaches dividing at least a portion of the sound data into a plurality of frequency ranges, at least one of the frequency ranges associated with a periodic haptic effect; analyzing each frequency range by the processor to determine one or more sound features corresponding to at least one of the frequency ranges; and executing at least one haptic effect based on the determined one or more sound features and having a sound magnitude above a threshold value from the average (SEE Thorner et al. figure 1, items 100, 102, 103, 112, figure 3,

items 310,330, figure 4, items 430, 440, 450, 340, figure 11, items 1110, 1120, and 1130, column 2, lines 52-65, column 8, lines 57-66, Col. 9, lines 53-67, column 11, lines 17-40, which teaches, the analyzing including identifying at least one frequency component of a sound feature, the at least one frequency component being from a first frequency range).

Thorner et al do not teach computing an average of sound magnitudes in each frequency range. Chiba teaches in col. 14, lines 49-61, col. 18, lines 45-47 of computing an average of sound magnitudes. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the averaging of the sound magnitudes as taught by Chiba into Thorner et al in order to remove extra noise and utilize the correct sound magnitude.

With regard to claim 4 Thorner et al. wherein the portion of sound is divided into a plurality of frequency ranges by applying a plurality of filters to the portion of sound data (SEE Thorner et al. figure 4, item 430 =BASS AUDIO FILTER", item 440 "MIDRANGE AUDIO FILTER" 450 "TREBBLE AUDIO FILTER"), and identifying a sound feature associated with at least one frequency component from the plurality of frequency components (SEE Thorner et al. figure 4, item 340 and figure 12 BASS AUDIO ANALYSIS").

With regard to claim 5 Thorner et al. teaches the method of claim 4, the plurality of filters having at least: a low-pass filter; and a high-pass filter (see Thorner et al. figure 4, item s 430 and 450).

With regard to claim 8 Thorner et al. teaches the method of claim 4, wherein the at least one frequency component is each associated with a haptic effect related to the frequency range associated with the at least one frequency component (SEE Thorner et al. figure 12).

With regard to claim 9 Thorner et al. teaches the method of claim 4, wherein the at least one frequency component is each uniquely associated with a periodic haptic effect having a frequency corresponding to the plurality of frequency ranges associated with the at least one frequency component (SEE Thorner et al. figure 11).

With regard to claim 10 Thorner et al. teaches the method of claim 2, wherein the at least one haptic effect was previously mapped to the at least one sound feature (Thorner et al col. 6, lines 57-65).

With regard to claim 12 Thorner et al reads on most of the limitations of claim 12 in addition Thorner et al. teaches the sound feature and haptic effect are characterized as being high-level (this recitation as to the relative level of importance of a sound or haptic effect such as being high is best directed towards an obvious intended use of Thorner et al. because a level of importance assigned to sounds in order for the program to know what to do when it hears two or more sounds at the same time).

With regard to claim 13 Thorner et al. teaches the method of claim 12, wherein the at least one high level haptic effect is associated with the at least one frequency component (SEE Thorner et al. figure 12).

With regard to claim 19 Thorner et al. teaches the method of claim 12, wherein the least one high-level haptic effect is executed as a haptic sensation output by a haptic feedback device (SEE Thorner et al. figure 1, item 120).

With regard to claim 20 Thorner et al. teaches the method of claim 12 wherein the at least one high-level haptic effect is stored in memory of the computer as a created haptic effect (Thorner, col. 8, lines 17-64; col. 11, lines 54-64).

With regard to claim 14 Thorner et al. was shown in claims 1,4, and 12 above to read on most of the limitations of claim 14, in addition Thorner et al. teaches, "the analyzing including separating the portion of sound data into a plurality of frequency components associated with a plurality of frequency ranges by applying a plurality of filters to the portion of sound data(SEE Thorner et al. figure 4, item 430 "BASS AUDIO FILTER", item 440 "MIDRANGE AUDIO FILTER" 450 "TREBBLE AUDIO FILTER"), and identifying a sound feature associated with at least one frequency component from the plurality of frequency components (SEE Thorner et al. figure 4, item 340 and figure 12 "BASS AUDIO ANALYSIS").

With regard to claim 17 Thorner et al. teaches the method of claim 14, wherein the at least one frequency component is each associated with a haptic effect related to the frequency range associated with the plurality of frequency components (SEE Thorner et al. figure 12).

With regard to claim 18 Thorner et al. teaches the method of claim 1.4, wherein the at least one frequency component is each uniquely associated with a periodic haptic effect having a frequency corresponding to the plurality of frequency ranges associated with the at least one frequency component (SEE Thorner et al. figure 11).

With regard to claim 22 Thorner et al. was shown in claims 2 and 4, above to read on most of the limitations of claim 22, in addition Thorner et al. teaches, teaches a computer readable medium having code stored thereon (SEE Thorner et al. figure 2, item 102 and also figure 3, items 342 and 344).

With regard to claim 23 Thorner et al. teaches the computer readable medium of claim 22, wherein at least one haptic effect is associated with the at least one frequency component (SEE Thorner et al. figure 12).

With regard to claim 27 Thorner et al. teaches the computer readable medium of claim 22 wherein the at least one haptic effect was previously mapped to the at least one sound feature (SEE col. 11, lines 60-64, a RAM/ROM).

With regard to claim 24 Thorner et al. was shown in claims 1,4, 12, 14 and 22 above to read on most of the limitations of claim 24, in addition Thorner et al. teaches, the code to analyze including code to separate the portion of sound data into a plurality of frequency components associated with a plurality of frequency ranges by applying a plurality of filters to the portion of sound data (SEE Thorner et al. figure 4, item 430 "BASS AUDIO FILTER', item 440 "MIDRANGE AUDIO FILTER" 450 =TREBBLE AUDIO FILTER"), and code to identify a sound feature associated with at least one frequency component from the plurality of frequency components (SEE Thorner et al. figure 4, item 340 and figure 12 =BASS AUDIO ANALYSIS").

With regard to claim 28 Thorner et al. was shown in claims 2, 4 and 22 above to read on most of the limitations of claim 24, in addition Thorner et al. teaches, an apparatus, comprising: the means for analyzing being configured to identify at least one frequency component of a sound feature, the at least one frequency component being from a first frequency range ((SEE Thorner et al. figure 1, items 100, 102, 103, 112, figure 3, items 310, 330, figure 4, items 430, 440, 450, 340, figure 11, items 1110, 1120, and 1130, column 2, lines 52-65), column 8, lines 57-66, column 9, lines 53-67, column 11, lines 17-40).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 6, 7 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thorner et al in view Chiba (US 5,675,709) and in view of Fineberg (US 5,842,163).

With regard to claims 6, 7, and 25 Thorner et al. does not illustrate, the analyzing including: separating the portion of sound data into a plurality of frequency components associated with a plurality of frequency ranges using a fast Fourier transform (FFT), wherein a number of outputs from the fast Fourier transform are grouped to provide sound features associated with each frequency range from. the plurality of frequency ranges". Thorner et al. instead performs separating the portion of sound data into a plurality of frequency components associated with a plurality of frequency ranges using a treble, midrange and bass audio filters. Note in column 8, lines 53-56 Thorner et al. states this section serves to filter and separate the audio signal into one or more filtered audio signals that are more amenable to manipulation by the micro controller 320. and then states in column 8, lines 57-64; "The analog audio signals leaving pre-processing section 310 are then sampled by analog-to-digital converters (ADCs) 330 to produce digital signals that are processed and analyzed by the processor 340 to generate the control signals for the tactile sensation generators. The processing of the audio signals are generally performed under the control of the micro controller 320 using the appropriate software application residing in the ROM 344." Therefore there is a clear suggestion to use an "appropriate software application" to perform the processing of the sound data, but there was little detail given therefore it is essential we use a processing method well known in the art for proper implementation of the Thorner et al. It is obvious that the well known text book mathematical process of using a fast Fourier transform (FFT) to convert the input sound time

function into a frequency (power) spectrum would have been used. Fineberg teaches =method for recognizing a sampled sound signal in noise" (title), where 'and a minimum and maximum feature value for each frequency band" (figure 2, item 220) and determine power spectrum values for each pre-emphasized sampled sound signal" (figure 3) and see figure 4 "a representation of a power spectrum of a sampled sound signal with frequency filters imposed thereon" and further Fineberg states in column 3, lines 34-54; "The pre-emphasized sound signal samples for each analysis frame are band pass filtered by a series of filters covering different frequency bands. The filters may be applied in any computational manner desired in either the time domain or the frequency domain. In the preferred embodiment, the filters are applied in the frequency domain. First, however, a power spectrum of the pre-emphasized sound signal samples in the analysis frames must be computed (320 of FIG. 3). The power spectrum is found by:

a. The pre-emphasized sound signal samples in the analysis frame are multiplied by samples of a window function, or weighting function. Any window function may be applied. For purposes of explaining the present invention, a simple rectangular window is assumed (the window has a value of 1.0 for all samples).

b. The Fourier Transform of the pre-emphasized sound signal samples in each windowed analysis frame is computed.

c. Values for the power spectrum are obtained by squaring the Fourier Transform values."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Thorner et al. apparatus to the use the processing method taught by

Fineberg because as stated above Thorner et al. indirectly suggested it and Fineberg gave the motivation needed for using his processor for example he stated in column 1, line 13-15 "to sound recognition in a high or variable noise environment".

Response to Arguments

5. Applicant's arguments with respect to claims 2, 4-7, 10, 22-25, 27 and 28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SRILAKSHMI K. KUMAR whose telephone number is (571)272-7769. The examiner can normally be reached on 7:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Lefkowitz can be reached on 571 272 3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Srilakshmi K Kumar/
Examiner
Art Unit 2629

SKK
April 8, 2009

/Richard Hjerpe/
Supervisory Patent Examiner, Art Unit 2629